

Cantacaderinae Collected by the Hungarian Expeditions to West Afrika with Some Notes on Cantacaderinae (Heteroptera, Tingidae)

By

J. M. ŠTUSÁK*

Abstract. The material of 70 specimens of Cantacaderinae collected in Ghana and the République du Congo is studied. *Cantacader angustecostatus* sp. n. is described from Ghana and reported from the Congo Republic. *C. hulstaerti* SCHOUT. and *C. clairi* SCHOUT. are newly recorded from Ghana and the Congo Republic, *C. afzelii* STAL and *Phatnoma maynei* SCHOUT. are new to the Congo Republic. The occurrence of *C. tenuipes* STAL (incl. var. *furtivus* DRAKE) in Ghana and in the Congo Republic is confirmed. Distribution and distinguishing notes are given about the *Cantacader* species mentioned in the paper. Notes on sexual dimorphism of *Cantacader* species are quoted; the most important secondary sexual character includes the length and width of the third antennal segment. The genus *Cyperobia* BERGR. (of New Zealand) is transferred from Phatnomini to Cantacaderini, as it has a markedly developed ventral stenocostal area.

This paper is based on material collected by the Hungarian Soil Zoological Expedition to the Brazzaville-Congo and by Dr. S. ENDRŐDY-YOUNGA in Ghana. (For details see: BALOGH, ENDRŐDY-YOUNGA & ZICSI, 1965; ENDRŐDY-YOUNGA, 1970.).

In the material studied 70 specimens of Cantacaderinae belonging to six species of two genera were ascertained including one newly described species. As our knowledge about the distribution of Cantacaderinae is still rather incomplete, the localities of the collected specimens are given below. Besides faunistic records, also distinguishing notes and notes on sexual dimorphism of *Cantacader* species are quoted.

Also a short note on *Cyperobia carectorum* BERGR. of New Zealand is included and the species is transferred from Phatnomini to Cantacaderini.

* Dr. Josef M. Štusík, Department of Animal Physiology and Zoology, University of Agriculture, 160 21 Prague 6 Suchbát, Czechoslovakia.

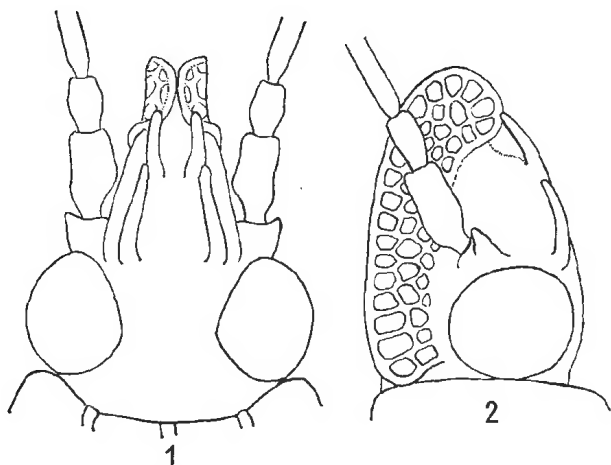


Fig. 1. *Cantacader angustecostatus* sp. n., head, dorsal view. — Fig. 2. *Cantacader angustecostatus* sp. n., head, lateral view

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Cantacader angustecostatus sp. n.

Derivation of name: This new species is named after its very narrow costal area (*angustus* = narrow in Latin).

Macropterous form. Ochreous brown, similar to many other *Cantacader* species. Body shape narrowly prolonged, lateral margins of hemelytra almost parallel, body generally 3.3–3.5 times longer than wide.

Head ochreous brown, eyes blackish. Bucculae broadly rounded at their apices, short, reaching only very slightly beyond apex of anteclypeus, mostly triseriate, open in front or nearly touching anterodorsally (Figs. 1, 2). Spines of dorsal side of head adjacent and short, the first pair reaching about the level of apex of first antennal segment, the second pair about level of the middle of first antennal segment. Antenniferous tubercles short, smaller than second antennal segment, their outer corner pointed but not spine-like protruding. Synthlipsis 1.0–1.1 times longer than dorsal width of an eye. Antennae long and slender, yellowish ochreous, fourth segment dark brown. Third antennal segment as wide as anterior tibia and 1.72–1.88 times longer than median length of pronotum in male. (Female unknown, but third antennal segment probably shorter and more slender than in the male, as to be judged by analogy.) Rostrum reaches zygoternum IV (mostly at its middle).

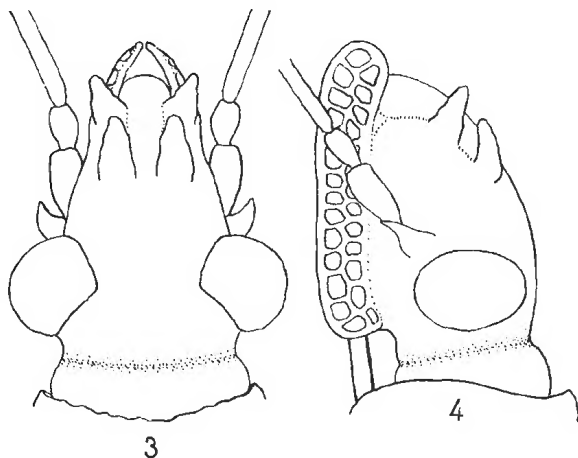


Fig. 3. *Cyperobia carectorum* BERGR., head, dorsal view. — Fig. 4. *Cyperobia carectorum* BERGR., head, lateral view

Pronotum approximately as long as wide (94 : 96), its shape similar to that of other *Cantacader* species, with five longitudinal carinae but only three of them strongly developed; outer carinae very short, only extending from the level of humeral angles to posterior pronotal margin. These carinae are much lower and thinner, not too expressively marked than median and lateral pronotal carinae. Pronotum anteriorly about as wide as the head, anterolateral angles of pronotum rounded. Paranotum with one row of areolae anteriorly, with two rows in its widest portion (at the level of the callosities) and with one row of very small, disappearing areolae behind the callosities and posteriorly. Paranotum broadly rounded (not angulate) at the level of the humeral angles. Pronotal disc rather convex and areolated (Fig. 5).

Hemelytra relatively narrow, with broadly arch-like, rounded apices. Stenocostal area uniseriate, erected up and somewhat reflexed inwards, so that the costal area is not visible from the dorsal aspect, except its distal portion. Costal area very narrow with one row (or sometimes with two incomplete rows) of small areolae proximally; the areolae growing smaller in caudal direction and gradually disappearing (or almost disappearing) in the median portion of the costal area; distal portion of costal area has two rows of small areolae (Figs. 8, 9). Subcostal area biseriate proximally and distally, and triseriate in its widest portion medially. Discoidal area with five (six) rows of areolae in its widest portion.

Legs yellowish ochreous, only the extreme apices of tarsi are a little darker. Lateral and ventral portions of thorax and abdomen are similar to those in the related species.

Measurements in mm (first value: holotype, values in parentheses: minimum and maximum of the type-series): length of body 4.25 (3.88–4.25), maximum width of body 1.30 (1.11–1.30), width of head 0.48 (0.47–0.53), length of antenna (♂♂) 2.13 (1.98–2.24) (I : II : III : IV = 0.14 [0.13–0.16]: 0.13 [0.11–0.14] 1.62 [1.53–1.70]: 0.24 [0.21–0.24], length of pronotum 0.94 (0.82–0.95), width of pronotum 0.96 (0.84–0.97).

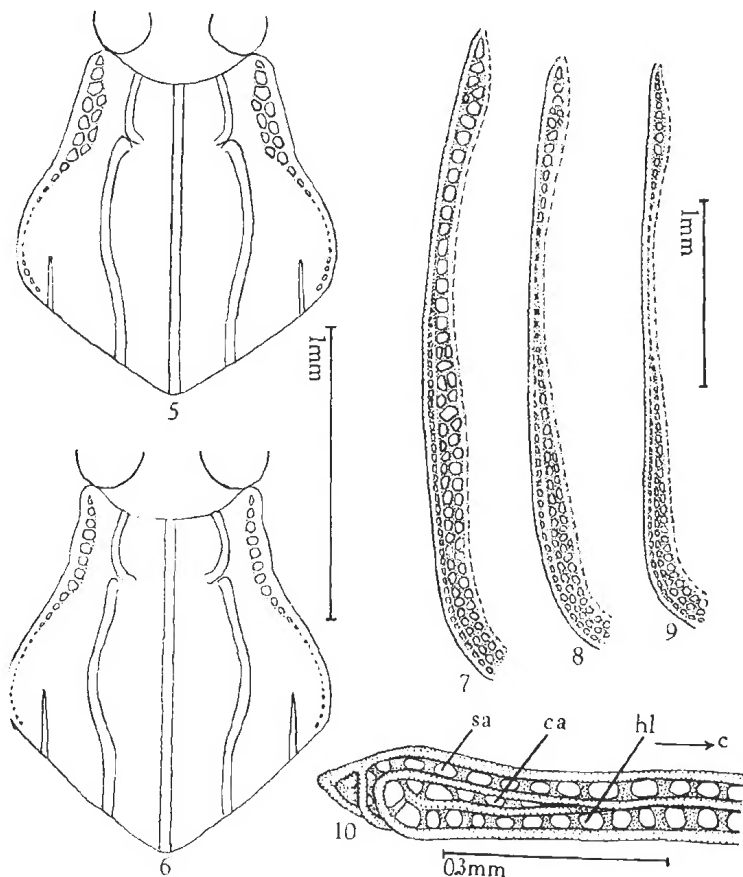


Fig. 5. *Cantacader angustecostatus* sp. n., pronotum with paranota and longitudinal carinae. — Fig. 6. *Cantacader gerardi* SCHOUT., pronotum with paranota and longitudinal carinae. — Figs. 7–9. Costal and stenocostal areas of hemelytra. The specimens were somewhat turned to the left to show the costal area clearly and also in horizontal position. Stenocostal areas visible only in distal halves as they are vertically turned up in their anterior halves. 7: *Cantacader allardi* SCHOUT., male. 8, 9: *Cantacader angustecostatus* sp. n., males, two extreme cases. — Fig. 10. *Cyperobia carectorum* BERGR., lateral view on basal portion of left hemelytron; sa: stenocostal area, ca: costal area, hl: hypocostal lamina, c: caudal direction

Holotype ♂: Ghana, Ashanti region, Kumasi, N 6° 43' – W 1° 36', 293 m, No. 8, taken at light, 23–29. 5. 1965, leg. S. ENDRÖDY-YOUNGA.

6 paratypes: The same locality and data (2 ♂♂). Ghana, Ashanti region, Kwadaso, N 6° 42' – W 1° 39', 259 m, black light, 5.5.1969 (1 ♂). République du Congo (Congo-Brazzaville: Lefinie Reservation, bungalow near Mpo, Nr. 604, singled on savannah, 8. 1. 1964, Soil Zool. Exp., leg. BALOGH & ZICSÍ (1 ♂). Mt. Fouari Reservation near Gabon, Nr. 456, by lamplight, 12. 12. 1963 (1 ♂). Plato Bateke, Oban, by lamplight on savannah, 5. 1. 1964 (1 ♂). If not mentioned otherwise, all materials were collected by S. ENDRÖDY-YOUNGA. — Holotype and paratypes deposited in the Hungarian Natural History Museum, Budapest.

Distinguishing notes: The new species belongs to the group of *Cantacader* species which have five longitudinal carinae on the pronotum and of which the outer pronotal carinae are very short. It is, therefore, related to *C. basilewskyi* SCHOUT., *C. gerardi* SCHOUT. and *C. allaeri* SCHOUT., and is similar to *C. basilewskyi* by its very narrow costal area which is almost rib-like (with tiny disappearing areolae) medially. It considerably differs, however, in having the third antennal segment much longer (1.72–1.88 times longer than pronotal length in the male of the new species, only 1.2 times in the male of *C. basilewskyi*), in its narrower syntelphysis (1.4 times longer than eye in male of *C. basilewskyi*) and in general appearance, since *C. basilewskyi* is a dark brown species with a blackish head. *C. angustecostatus* sp. n. differs from *C. gerardi* especially in the shape of the pronotum, which is narrower anteriorly than the head and with very narrow uniseriate paranota in *C. gerardi* (Figs. 5, 6), and in having very narrow costal area. The costal medially in *C. gerardi* as well as in *C. allaeri* (Fig. 7). The new species differs from *C. allaeri* in having its costal area very narrow and in having a longer rostrum usually reaching the middle of zygosternum IV in the new species, while in *C. allaeri* the rostrum reaches the middle of zygosternum III. The outer pronotal carinae are very short and slender; sometimes these are not too marked in the new species, so that it may resemble *C. hulstaerti* SCHOUT. in which the pronotum is only tricarinate since the outer carinae are nearly or quite absent. The new species differs, however, from that species also in the narrow costal area, as the costal area is wider, mostly biseriate medially in *C. hulstaerti*.

Cantacader hulstaerti SCHOUTEDEN, 1965

In the material studied there were 17 specimens (♂♂) with the following data:

Ghana: Northern region, Banda-Nkwanta, 122 m, N 8° 22'–W 2°09', light trap, leg. S. ENDRŐDY-YOUNG: Nr. 20, 1–7. 7. 1965, 1 ♂; No. 46, 20–24. 7. 1965, 1 ♂; No. 56, 10–13. 8. 1965, 1 ♂; No. 58, 19–22. 8. 1965, 2 ♂♂; No. 73, 13–17. 9. 1965, 1 ♂; No. 80, 18–20. 9. 1965, 1 ♂; No. 82, 24–26. 9. 1965, 5 ♂♂; No. 83, 27–29. 9. 1965, 3 ♂♂.

République du Congo (Congo-Brazzaville): Lefinie Reservation, bungalow near Mpo, No. 604, 8. 1. 1964, singled on savannah, Soil Zool. Exp., leg. BALOGH & ZICSI, 1 ♂. Kindaniba, Méya, settlement, 7. 11. 1963, by lamplight, Soil Zool. Exp., leg. S. ENDRŐDY-YOUNG, 1 ♂.

The species was described from Zaire (Bamania, Equateur) and is newly recorded from the République du Congo and Ghana.

This species is clearly distinguishable by having only three well-developed longitudinal carinae on the pronotum running from the anterior to the posterior pronotal margin. The outer carinae are either quite absent or only very indistinctly indicated at the posterior pronotal margin, and the costal area is biseriate medially.

Cantacader clairi SCHOUTEDEN, 1965

Five (4 ♂♂, 1 ♀) specimens were ascertained in the material studied:

Ghana: Upper region, Tumu, N 10° 08', No. 516, 16. 1. 1972, soil trap, 1 ♀. Northern region, Banda-Nkwanta, 122 m, N 8° 22'–W 2° 09', No. 82, 24–26. 9. 1965, light trap, 2 ♂♂; No. 80, 18–20. 9. 1965, 1 ♂, leg. S. ENDRŐDY-YOUNG.

République du Congo: Lefinie Reservation, bungalow near Mpo, No. 590, 6. 1. 1964, by lamplight, leg. BALOGH & ZICSI, 1 ♂.

This species was described and known from Zaire (Lubudi, Katanga) and is newly recorded from the République du Congo and Ghana.

It is similar to *C. divisus* BERGROTH but differs from that species especially in a wider costal area which is triseriate medially in *C. clairi*.

Cantacader afzelii STAL, 1873

In the Hungarian material there were 12 specimens (5 ♂♂, 7 ♀♀) from the following localities:

Ghana: Ashanti region, Kwadaso, 259 m, N 6° 42' - W 1° 39', No. 341, mixed light, 28. 4. 1969, 1 ♀. Kumasi, 330 m, N 6° 43' - W 1° 36', No. 284, black light, 27. 10. 1967, 1 ♀. Kumasi, 293 m, No. 290, light trap, 10. 12. 1967, 1 ♂, 1 ♀; No. 230, 2. 7. 1967, 1 ♂. Northern region, Banda-Nkwanta, 122 m, N 8° 22' - W 2° 09', No. 80, light trap, 18 - 20. 9. 1965, 1 ♀.

République du Congo: Sibiti IRHO, oil-palm plantation, No. 224, 23, 11. 1963, sifted fallen oil-palm fruits, 1 ♀. Sibiti IRHO park, No. 287, 28. 11. 1963, by lamplight, 1 ♀. Brazzaville ORSTOM park, No. 563, 30. 12. 1963, light trap, 1 ♂; No. 220, 22. 11. 1963, leg. BALOGH & ZICSÍ, 1 ♀; No. 32, 25. 10. 1963, 1 ♂. Mt. Fouari reservation near Gabon, No. 462, 13. 12. 1963, by lamplight, 1 ♂. If not mentioned otherwise, all specimens were collected by S. ENDRÖDY-YOUNGA.

The species was described from Sierra Leone and later reported from Guinea, Ivory Coast, Liberia, Ghana, Ethiopia, Somalia, Kenya, Zaire, Angola and Mascarene Islands (Mauritius). It has been newly reported from the République du Congo.

It is one of the most common Ethiopian *Cantacader* species and can be easily recognized by the rounded anterolateral angles of pronotum, five-carinated pronotum with long outer prothoracic carinae and by a narrow uniseriate costal area.

Cantacader tenuipes STAL, 1865

In the material studied there were 26 specimens (22 ♂♂ and 4 ♀♀) to be found, labelled as follows:

Ghana: Ashanti region, Kumasi, 330 m, N 6° 43' - W 1° 36', at light, No. 13, 18 - 20. 6. 1965, 1 ♂; No. 14, 21 - 23. 6. 1965, 1 ♀; No. 206, 1 - 7. 3. 1967, 1 ♂; No. 225, 12. 6. 1967, 1 ♂; No. 230, 2. 7. 1967, 1 ♂; No. 290, 10. 12. 1967, 2 ♂♂. Kwadaso, 259 m, N 6° 55' - W 1° 39', No. 358, 22. 5. 1969, light trap, 1 ♂. Brong-Ahafo region, Bui camp, 130 m, N 8° 17' - W 2° 15' light trap, No. 87, 27. 10. 1965, 1 ♂.

République du Congo: Soil Zool. Exp., Brazzaville, ORSTOM park, light trap, No. 524, 26. 12. 1963, 1 ♀; No. 220, 22. 11. 1963, leg. BALOGH & ZICSÍ, 4 ♂♂; No. 506, 24. 12. 1963, 5 ♂♂; No. 538, 28. 12. 1963, 2 ♂♂, 1 ♀; Mt. Fouari reservation near Gabon, No. 456, 12. 12. 1963, 1 ♂, 1 ♀. Loudima SAGRO park, No. 453, 11. 12. 1963, light trap, 1 ♂; No. 431, 10. 12. 1963, 1 ♂. If not mentioned otherwise, all materials were collected by S. ENDRÖDY-YOUNGA.

The species was described from Sierra Leone, and later reported from the Aden Protectorate, Somalia, Guinea, Ghana, Zaire, Angola, Kenya, and the variety *furtivus* DRAKE also from the République du Congo.

It seems to be the most common one of the Ethiopian *Cantacader* species, characterized by sharply pointed anterolateral angles of the pronotum, very long and considerably anteriorly produced apically pointed bucculae, very long spines of the head, the anterior pair of which reaches the level of the anterior apex of the bucculae and by the apex of hemelytron being angularly curved.

The variety *furtivus* DRAKE, previously known from Zaire and the République du Congo, is characterized by having its sutural area mostly dark brown

including the median portions of the discoidal, subcostal and costal areas; the variety seems to be only an extremely dark form of the species, as in the other specimens of the material studied the dark colouring is less than in the holotype of this variety and disappears in different ways in various specimens.

Phatnoma maynei SCHOUTEDEN, 1916

Three specimens (2 ♂♂ and 1 ♀) of this interstring species were ascertained in the material studied:

République du Congo: Brazzaville, ORSTOM park, Soil Zool. Exp. No. 698, 16. 1. 1964, beaten, leg. BALOGH & ZICSI, 2 ♂♂. Lefinie reservation, Mbéokala forest, Soil Zool. Exp. No. 639, 10. 1. 1964, beaten in forest, leg. BALOGH & ZICSI, 1 ♀.

The species was described from Zaire (Congo da Lemba) and has been newly reported from the République du Congo.

The studied specimens fully agree with SCHOUTEDEN's holotype.

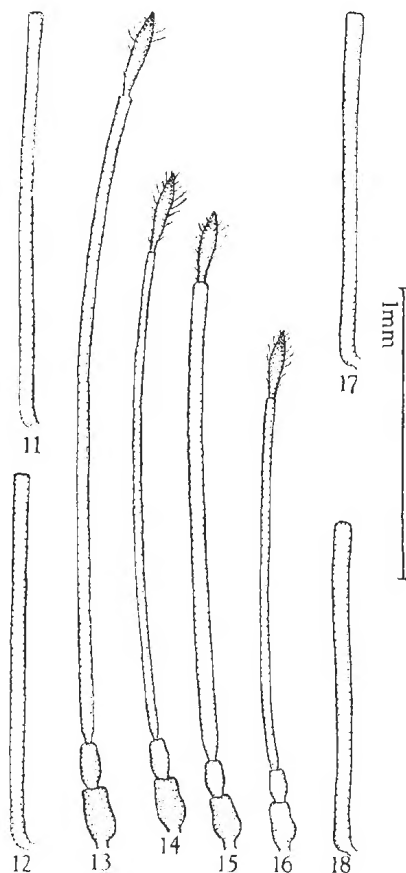
On sexual dimorphism

The species of *Cantacader* (as well as of Cantacaderinae) were described in rather different ways (not uniformly), so that their identification relying on the original descriptions is very difficult, sometimes even impossible. In many original descriptions the sex of the holotypes or that of the specimens underlying the description or figure were not mentioned although the sex of a specimen seems to be very important, since some of the distinguishing characters correspond to sex and are, therefore, secondary sexual characters. After studying a rich collection of the Ethiopian *Cantacader* species (kindly lent by the Musée Royal de l'Afrique Centrale, Tervuren and the Hungarian Natural History Museum) it has been possible to record some notes on the distinctive characters depending on sex of *Cantacader* specimens. Probably, that the notes can also be applied to other genera of Cantacaderinae.

Although the differences between males and females of Cantacaderinae are of the same general qualitative character as in the majority of Tingidae, the secondary sexual characters are much more developed in Cantacaderinae than in Tinginae. The most important sexual differences in the *Cantacader* species include especially the shape and size of antennae, the size of eyes and synthlipsis and the width of the subcostal area.

There is considerable dimorphism in the length and width of the third antennal segment. The length of the segment can be used not only as a distinctive character of sex in specimens of the same species but also as one in different species in specimens of the same sex. It can be assumed in general in *Cantacader* species that the third antennal segment is at all times much longer and wider in males than in females of the same species, being approximately as wide as the anterior tibia in the former and much thinner than the anterior tibia in the latter (Figs. 11–18). There exist, of course, special situations in different species.

A further instance of sexual dimorphism is to be observed in the size of eyes and synthlipsis just as in many groups of Heteroptera. The dorsal width of an eye and the width of synthlipsis can be applied as distinguishing characters of



Figs. 11–18. Anterior tibiae and sexual dimorphism in right antenna of some *Cantacader* species. 11: *C. tenuipes* STAL, tibia of male. 12: *C. tenuipes* STAL, tibia of female. 13: *C. tenuipes* STAL, antenna of male. 14: *C. tenuipes* STAL, antenna of female. 15: *C. afzelii* STAL, antenna of male. 16: *C. afzelii* STAL, antenna of female. 17: *C. afzelii* STAL, tibia of male. 18: *C. afzelii* STAL, tibia of female

species only in relation to the sex of the examined specimens as there are differences between males and females, expressed differently in different *Cantacader* species.

The shape of the body is usually (but not always) broader in females than in males, especially the subcostal area; also the discoidal and distal portion of the costal area may be somewhat dilated, since they are, as a rule, enlarged by one incomplete row of areolae.

Therefore, when studying and identifying *Cantacaderinae*, sex needs to be taken into consideration.

The *Cantacader* species were collected predominantly at light, and it is interesting that males could be collected in much greater numbers than females. From the studied material (55 ♂♂: 12 ♀♀) it seems, that males are more active and can more intensively fly to light traps than females.

I had the opportunity to examine one specimen of Cantacaderinae in the collections of the Hungarian Natural History Museum; it was identified as *Cyperobia carectorum* BERGR. (♂) by W. E. CHINA in 1929, labelled New Zealand, Karori, 8. 3. 1924. This specimen considerably differs from the original description of *Carldrakeana socia* (DRAKE & RUHOFF, 1961) and also from the figure given by the authors not only in its general appearance and much slender stature, but also in some detailed characters. It resembles, however, the figure as given by DRAKE & DAVIS (1960) and Fig. 18. presented by WOODWARD (1961). FROESCHNER (1968), however, wrote that the figure of *Cyperobia carectorum* given by DRAKE & DAVIS (1960) was in fact *Carldrakeana socia* and also WOODWARD's Fig. 19. represents *Carldrakeana socia*. I am unable to comment on this point, as I did not examine the types of *Carldrakeana* FROESCH., but there is no doubt that the specimen identified as *Cyperobia carectorum* by CHINA differs from *Carldrakeana socia*. Neither is there any reason to hesitate as to the correct identification of the specimen in the Hungarian Museum.

FROESCHNER (1968) transferred the genus *Stenocader* DRAKE & HAMBLETON from Phatnomini to Cantacaderini, as it had the stenocostal area very strongly developed, but only ventrally. In the specimen of *Cyperobia carectorum*, which is at hand the ventral developed of the stenocostal area is clearly evident, in the same way as in *Stenocader* (Fig. 10). Therefore, the genus *Cyperobia* BERGROTH needs to be transferred from Phatnomini to the tribe Cantacaderini. It seems that *Cyperobia* is related to *Stenocader* not only by the ventral development of its stenocostal area but also by the general character of head (Figs. 3, 4).

Thus, *Cyperobia* differs from *Carldrakeana*, among others, in the presence of a ventral stenocostal area.

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